PART XVII Infectious Diseases

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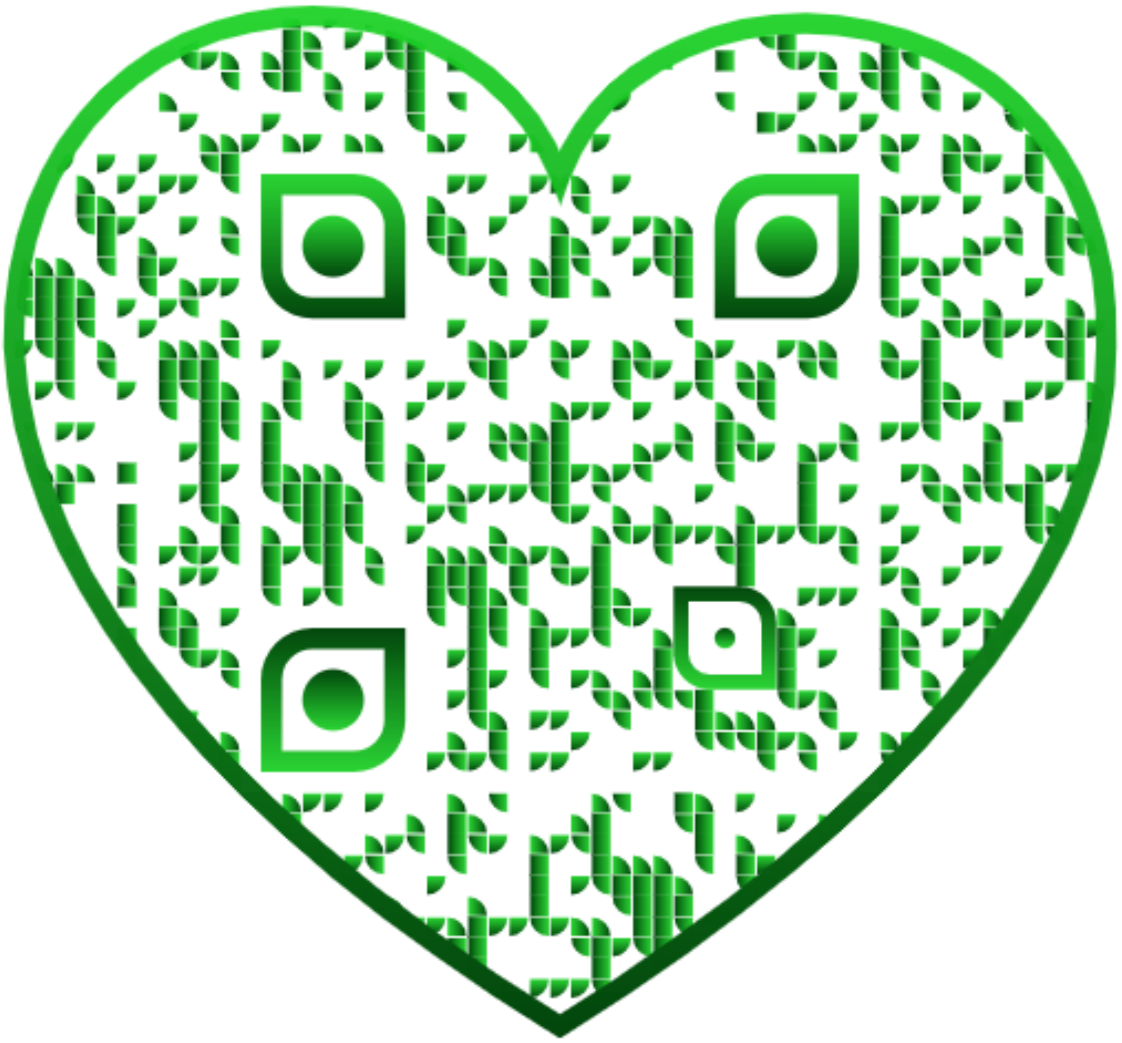
1. Approximately 80% of blood cultures that will be positive are identified at
   A. 1st 24 hr from incubation
   B. 25 – 48 hr from incubation
   C. after 3 day from incubation
   D. after 5 day from incubation
   E. after 7 day from incubation

2. The optimal amount of blood to collect from a pediatric patient for blood culture depend on
   A. age
   B. weight
   C. length
   D. BMI
   E. laboratory standards

3. The IgM response occurs earlier in the illness, generally peaking at 7-10 days after infection, and usually disappears within a few weeks, but for some infections it can persist for months such as
   A. measles
   B. mumps
   C. rubella
   D. hepatitis A
   E. varicella

4. Vaccines are defined as whole or parts of microorganisms administered to prevent an infectious disease.
Which of the following is a live attenuated vaccine?
   A. hepatitis A
   B. hepatitis B
   C. pneumococcal
   D. varicella
   E. diphtheria

5. Which of the following is a T-lymphocyte independent vaccine?
   A. hepatitis A
   B. hepatitis B



C. pneumococcal
D. varicella
E. diphtheria

6. Rotavirus vaccine should not be initiated for infants older than
A. 11 wk
B. 13 wk
C. 15 wk
D. 17 wk
E. 19 wk

7. The final dose of rotavirus vaccine must be administered no later than
A. 6 mo of age
B. 8 mo of age
C. 10 mo of age
D. 12 mo of age
E. 18 mo of age

8. Immunization is one of the most beneficial and cost-effective disease prevention measures. As a result of effective and safe vaccines, which of the following diseases has been eradicated?
A. smallpox
B. polio
C. measles
D. rubella
E. pertussis

different diseases caused by 2 different viruses. Chickenpox is caused by the Varicella Zoster virus, and smallpox is caused by the Variola virus. Smallpox spots are smaller, the amount of fluid in the pimples is less. Chickenpox blisters look like water bubbles, break easily and cause infection if not kept clean

9. Infants, children, and adolescents in Iraq are routinely immunized against
A. 10 diseases
B. 11 diseases
C. 12 diseases
D. 13 diseases
E. 14 diseases

BCG, poliomyelitis, hepatitis B, diphtheria, tetanus, pertussis, H. influenzae type b (Hib) disease, rotavirus, measles, mumps and rubella.

10. The **MOST** common adverse reaction to intramuscular immunoglobulin is
A. pain at the injection site
B. flushing
C. headache
D. chills
E. nausea

11. All the following are major recommended indications for IVIG **EXCEPT**

A. replacement therapy for primary immunodeficiency disorders
B. Kawasaki disease
C. hepatitis A prophylaxis intramuscular IG is recommended.
D. immune-mediated thrombocytopenia
E. prophylaxis of infection following bone marrow transplantation

12. Serious reactions to IVIG include all the following **EXCEPT**
A. anaphylactoid events
B. thromboembolic disorders
C. aseptic meningitis
D. carditis
E. renal insufficiency

13. A toxoid is a modified bacterial toxin that is made non-toxic but still able to induce an active immune response against the toxin.
Which of the following vaccine is a toxoid?
A. hepatitis A
B. hepatitis B
C. pneumococcal
D. varicella
E. diphtheria Tetanus and diphtheria

14. Hepatitis A vaccine, licensed for administration to children 12 mo of age and older. The 2 doses in the series should be separated by at least
A. 2 mo
B. 4 mo
C. 6 mo
D. 1 yr
E. 2 yr

15. The minimum interval between the 2 doses of MMR is
A. 2 wk
B. 4 wk
C. 2 mo
D. 6 mo
E. 1 yr

16. The minimum age for the last dose of hepatitis B vaccine is
A. 16 weeks
B. 20 weeks
C. 24 weeks
D. 28 weeks

E. 32 weeks

17. Preterm infant, weight 1600 gm, should not receive the following vaccine at birth

A. BCG
B. hepatitis B, if born to a HBs Ag negative mother
C. polio
D. DPT
E. MMR

Infants weighing ≥2 kg and who are stable may receive a birth dose. However, hepatitis B vaccination should be deferred in infants weighing <2 kg at birth until 30 days of age, if born to a HBs Ag negative mother. All preterm, low birth weight infants born to HBs Ag positive mothers should receive hepatitis B immunoglobulin and hepatitis B vaccine within 12 hr of birth. However, such infants should receive an additional 3 doses of vaccine starting at 30 days of age.

18. Which of the following vaccines is contraindicated for a patient with X-linked agammaglobulinemia?

A. BCG
B. hepatitis B
C. DPT
D. MMR
E. varicella

Oral polio, smallpox, live attenuated influenza, and BCG

19. Which of the following vaccines is contraindicated for a patient with chronic renal disease?

A. pneumococcal
B. hepatitis B
C. live attenuated influenza
D. varicella
E. hepatitis A

20. Waterless hand hygiene products are effective in killing most microbes but do not remove dirt or debris and are ineffective against

A. Pseudomonas
B. hepatitis A
C. Salmonella
D. C. difficile
E. S. aureus

21. All the following are recognized skin infections or infestations in children in childcare **EXCEPT**

A. impetigo
B. pediculosis
C. scabies
D. erythrasma
E. tinea corporis

22. A 3-year-old child diagnosed with shigella infection, he can return to his daycare

A. 2 days after initiation of treatment
B. after diarrhea resolves
C. after diarrhea resolves and results of a single stool culture is negative for these organisms
D. after diarrhea resolves and results of 2 stool cultures are negative for these organisms
E. after diarrhea resolves and results of 3 stool cultures are negative for these organisms

23. Oral rehydration is the mainstay of treatment for pediatric traveler's diarrhea and the drug of choice is
A. metronidazol
B. azithromycin
C. amoxicillin
D. trimethoprim-sulfamethoxazol
E. erythromycin

Ciprofloxacillin is alternative . Other treatment have high resistant to traveler diarrhoea microorganism

24. Fever is defined as a rectal temperature of
A. ≥37.5°C
B. ≥37.6°C
C. ≥38°C
D. ≥38.1°C
E. ≥38.5°C

value >40°C (104°F) is called hyperpyrexia

25. Three mechanisms can produce fever: pyrogens, heat production exceeding loss, and defective heat loss. Endogenous pyrogens include
A. antigen–antibody complexes
B. complement components
C. lymphocyte products
D. interferons β and γ
E. androgenic steroid metabolites

26. Drugs that are known to cause fever include
A. chlorpheniramine
B. allopurinol
C. diphenhydramine
D. acetazolamide
E. adenosine

vancomycin, amphotericin B, and allopurinol.

27. Ingestion of dirt is an important clue to infection with
A. amebiasis
B. giardiasis

C. malaria
D. trichinosis
E. toxoplasmosis

28. Bulbar conjunctivitis in a child with FUO suggests
A. leptospirosis
B. coxsackievirus infection
C. tuberculosis
D. infectious mononucleosis
E. lymphogranuloma venereum

Palpebral conjunctivitis in a febrile patient may be a clue to measles, coxsackievirus infection, tuberculosis, infectious mononucleosis, lymphogranulomavenereum, or cat-scratch disease.
In contrast, bulbar conjunctivitis in a child with FUO suggests Kawasaki disease or leptospirosis

29. Multiple blood cultures may be required to detect bacteremia associated with
A. malaria
B. pyelonephritis
C. brucellosis
D. osteomyelitis
E. pneumonia

Multiple or repeated blood cultures may be required to detect bacteremia associated with infective endocarditis, osteomyelitis, or deep-seated abscesses.

30. Primary immunodeficiencies are compromised states that result from genetic defects affecting 1 or more arms of the immune system while secondary immunodeficiencies result from infection, malignancy, or as an adverse effect of immunomodulating or immunosuppressing medications.
Which of the following represent secondary immune deficiency?
A. Shwachman-Diamond syndrome
B. cystic fibrosis
C. Chédiak-Higashi syndrome
D. Omenn syndrome
E. ataxia-telangiectasia

primary الباقي كله

Mean circadian

31. Which type of fever is persistent and varies by more than 0.5°c (0.9°f)/day?
A. intermittent
B. hectic
C. sustained
D. remittent
E. relapsing

Intermittent fever is an exaggerated circadian rhythm that includes a period of normal temperatures on most days;
extremely wide fluctuations may be termed septic or hectic fever.
Sustained fever is persistent and does not vary by more than 0.5°C (0.9°F)/day.
Remittent fever is persistent and varies by more than 0.5°C (0.9°F)/day.
Relapsing fever is characterized by febrile periods that are separated by intervals of normal temperature.

32. All the following are causes of very high temperatures (>41°C) **EXCEPT**
A. malignant hyperthermia
B. malignant neuroleptic syndrome
C. infection
D. drug fever
E. heat stroke

Very high temperature indicate non infectious cause

33. Relative bradycardia (when the pulse rate remains low in the presence of fever) can accompany all the following conditions **EXCEPT**

A. typhoid fever
B. brucellosis
C. leptospirosis
D. visceral leishmaniasis
E. drug fever

34. The **MOST** common serious bacterial infection in infant aged 1-3 mo is

A. pyelonephritis
B. meningitis
C. pneumonia
D. septic arthritis
E. osteomylitis

is also more common in uncircumcised infant boys and infants with urinary tract anomalies. E. coliis the most common pathogen identified in bacteremic infants.

35. Neutropenia is defined as an absolute neutrophil count of less than

A. 1,000 cells/mm3
B. 1,500 cells/mm3
C. 2,000 cells/mm3
D. 2,500 cells/mm3
E. 3,000 cells/mm3

36. Leukocyte adhesion defects are caused by defects in the β chain of integrin (CD18), which is required for the normal process of neutrophil aggregation and attachment to endothelial surfaces.
It is characterized by all the following **EXCEPT**

A. delayed cord separation
B. recurrent infections
C. ecthyma gangrenosum
D. neutropenia
E. survival is usually <10 yr

37. Penicillins are the drugs of choice for pediatric infections caused by the following **EXCEPT**

A. group A Streptococcus
B. H .influenzae
C. Treponema pallidum
D. L. monocytogenes
E. N. meningitides

38. Cefixime is a third-generation cephalosporin active against all the following **EXCEPT**

A. Streptococci

B. Staphylococci
C. H. influenza
D. Neisseria gonorrhoeae
E. Proteus vulgaris

39. Cephalexin is a cephalosporin active against S. aureus, Streptococcus, E. coli, Klebsiella, and Proteus. To which generation of cephalosporins it belongs?
A. 1st
B. 2nd
C. 3rd
D. 4th
E. 5th

40. Meropenem is a carbapenem antibiotic with broad-spectrum activity but has no activity against
A. P. aeruginosa
B. S. maltophilia
C. L. monocytogenes
D. S. aureus
E. N. meningitides

41. Metronidazole is highly effective in the treatment of infections caused by anaerobes. It can increase the level of which of the following drugs if given at the same time
A. carbamazepine
B. rifampin
C. phenobarbital
D. phenytoin increase levels of warfarin, phenytoin, and lithium.
E. vaiproic acid

42. Cephalosporins are widely used in pediatric practice, both in oral and parenteral formulations. Which of the following is a 2nd generation cephalosporins?
A. cefazolin
B. cephalexin
C. cefuroxime
D. ceftazidime
E. ceftaroline

43. Which cephalosporin should not be mixed or reconstituted with a calcium-containing product, such as Ringer solution or parenteral nutrition containing calcium?
A. cefazolin
B. cefotaxime

C. ceftriaxone
D. ceftazidime
E. cefepime

44. Toxic shock syndrome is an acute and potentially severe illness characterized by all the following **EXCEPT**

A. desquamation on the hands and feet
B. myalgias
C. focal neurologic abnormalities
D. conjunctival hyperemia
E. strawberry tongue

Toxic shock syndrome (TSS) is an acute and potentially severe illness characterized by fever, hypotension, erythematous rash with subsequent desquamation on the hands and feet, and multisystem involvement, including vomiting, diarrhea, myalgias, nonfocal neurologic abnormalities, conjunctival hyperemia, and strawberry tongue.

45. Which of the following represent a major criterion for the diagnosis of staphylococcal toxic shock syndrome?

A. rash + hypotention + fever (>38°)
B. conjunctival hyperemia
C. myalgia
D. thrombocytopenia
E. vomiting

46. Kawasaki disease closely resembles toxic shock syndrome clinically. However, many of the clinical features of toxic shock syndrome are usually absent or rare in Kawasaki disease like

A. fever unresponsive to antibiotics
B. hyperemia of mucous membranes
C. erythematous rash
D. desquamation
E. diffuse myalgia

including diffuse myalgia, vomiting, abdominal pain, diarrhea, azotemia, hypotension, acute respiratory distress syndrome, and shock.

47. S. pneumoniae is the most frequent cause of bacteremia, bacterial pneumonia, otitis media, and bacterial meningitis in children. Children at increased risk of pneumococcal infections include those with the following conditions **EXCEPT**

A. megaloplastic anemia
B. deficiencies in humoral immunity
C. HIV infection
D. cerebrospinal fluid leak
E. cochlear implants

48. Group A streptococcus can be subdivided into more than 220 serotypes on the basis of the M protein antigen, M serotyping is valuable for epidemiologic studies; specific group A streptococcus diseases tend to be associated with certain M types.
Of the following, the M type associated with glomerulonephritis is

A. 1
B. 6
C. 12
D. 18
E. 29

49. Scarlet fever is an upper respiratory tract infection associated with a characteristic rash.
Of the following, which statement is **TRUE**?

A. it is caused by an infection with pyrogenic endotoxin producing group A streptococcus
B. the rash appears 96 hr after onset of symptoms
C. the rash begins to fade after 1-2 weeks
D. before desquamation, the reddened papillae are prominent, giving the tongue a strawberry appearance
E. the milder form can be confused with Kawasaki disease

50. Impetigo (or pyoderma) has traditionally been classified into 2 clinical forms: bullous and nonbullous.
Of the following, which statement is **TRUE**?

A. bullous impetigo is more common
B. nonbullous lesions are most common on the trunk and perineum
C. regional lymphadenitis is commonly associated with nonbullous lesions
D. nonbullous impetigo is generally accompanied by fever
E. bullous impetigo usually involve the face and extremeties

51. In which of the following circumstances the diagnosis of acute rheumatic fever can be made without strict adherence to Jones criteria?

A. when chorea occurs as the only major manifestation of acute rheumatic fever
B. when indolent carditis is the only manifestation months after the apparent onset of acute rheumatic fever
C. in a limited number of patients with recurrences of acute rheumatic fever in particularly high-risk populations
D. all of the above
E. none of the above

52. Because no clinical or laboratory finding is pathognomonic for acute rheumatic fever, 5 major and 4 minor criteria with evidence of recent group A streptococcus infection are required for the diagnosis. Migratory polyarthritis represent one of the major criteria, which of the following statements is **TRUE** regarding this major criterion?

A. occurs in approximately 50% of patients

B. typically involves small joints
C. the pain can precede and can appear to be disproportionate to the objective findings
D. rheumatic arthritis is almost deforming
E. there is often a proportional relationship between the severity of arthritis and the severity of cardiac involvement

53. Acute rheumatic carditis usually presents as cardiac murmurs and
A. tachycardia
B. chest pain
C. dyspnea
D. syncopal attack
E. tachypnea

54. Patients with acute rheumatic carditis and more than minimal cardiomegaly should receive prednisone 2 mg/kg/day in 4 divided doses for
A. 7-10 days
B. 2-3 weeks
C. 6-8 weeks
D. 2-3 months
E. 4-6 months

55. The drug of choice for Sydenham chorea is
A. aspirin
B. prednisone
C. phenobarbital
D. haloperidol
E. chlorpromazine

56. To prevent first attack of acute rheumatic fever after acute group A streptococcus pharyngitis, appropriate antibiotic therapy should be instituted before
A. 3rd day of illness
B. 5th day of illness
C. 7th day of illness
D. 9th day of illness
E. 11th day of illness

57. Prophylaxis for people who have had acute rheumatic fever with carditis but without residual heart disease persist for
A. 5 yr or until 21 yr of age, whichever is longer
B. 10 yr or until 21 yr of age, whichever is longer
C. 5 yr or until 40 yr of age, whichever is longer

D. 10 yr or until 40 yr of age, whichever is longer
E. Lifelong

58. Group B streptococcus (GBS), or Streptococcus agalactiae, is a major cause of neonatal bacterial sepsis.
Of the following, the **MOST** common syndrome associated with childhood GBS disease beyond early infancy is

A. bacteremia without a focus
B. meningitis
C. ventriculitis
D. septic arthritis
E. pneumonia

Early-onset neonatal GBS disease presents as sepsis; pneumonia and meningitis. Late-onset neonatal GBS disease most commonly manifests as bacteremia (45-65%) and meningitis (25-35%). Invasive GBS disease in children beyond early infancy is uncommon. Bacteremia without a focus is the most common syndrome associated with childhood GBS disease beyond early infancy.

59. Recommended duration of therapy for manifestations of group B streptococcus are as follow

A. bacteremia without a focus: 7 days
B. meningitis: 3-6 weeks
C. ventriculitis: at least 8 weeks
D. septic arthritis: 3-4 weeks
E. osteomyelitis: 6-8 weeks

- bacteremia without a focus. 10days
- meningitis. 2-3wk
- ventriculitis . 4wk
- septicarthritis. 3-4wk
- osteomyelitis. 3-4wk

60. Diphtheria is an acute toxic infection; toxic cardiomyopathy occurs in 10-25% of patients with respiratory diphtheria and is responsible for 50-60% of deaths.
Of the following, the mainstay of therapy is

A. antitoxin
B. penicillins
C. erythromycin
D. clindamycin
E. rifampin

61. A painless, slow-growing, hard mass producing cutaneous fistulas, a condition commonly known as lumpy jaw is usually caused by

A. Staphylococcus
B. Actinomyces
C. Nocardia
D. Yersinia
E. Leptospira

62. The **MOST** common secondary site involved in cases of pulmonary nocardiosis is

A. brain
B. skin
C. kidney

D. liver
E. bone

63. Which of the following is a gram negative bacterium?
A. Staphylococcus aureus
B. Streptococcus pneumoniae
C. Actinomyces
D. Haemophilus influenza
E. Nocardia

64. Regarding epidemiology of Neisseria meningitides, all the following are true **EXCEPT**
A. meningococci are transmitted during close contact via aerosol droplets or exposure to respiratory secretions
B. meningococci survive for long periods in the environment
C. smoking and respiratory viral infection are associated with increased rates of carriage and disease
D. the highest rate of meningococcal disease occurs in infancy
E. most cases of meningococcal disease are sporadic

65. The **MOST** common clinical manifestation of meningococcal infection is
A. asymptomatic carriage
B. meningococcal meningitis
C. bacteremia without sepsis
D. meningococcal septicemia
E. pneumonia

66. In meningococcal purpura, necrotic skin lesions are less common among children treated with
A. penicillin G
B. ampicillin
C. cefotaxime
D. ceftriaxone
E. meropenem

67. The **MOST** common complication of acute severe meningococcal septicemia is
A. arthritis
B. focal skin infarction
C. endocarditis
D. pneumonia
E. peritonitis

68. A poor prognostic factor for invasive meningococcal disease on presentation is

A. hypertension
B. leukocytosis
C. alkalosis
D. meningitis
E. normal erythrocyte sedimentation rate

69. Of the following, the **MOST** effective agent for prophylaxis of meningococcal disease is
A. ceftriaxone
B. rifampin
C. ampicillin
D. penicillin
E. amoxicillin

70. Gonorrhea is manifested by a spectrum of clinical presentations from asymptomatic carriage, to the characteristic localized urogenital infections, to disseminated systemic infection.
Regarding disseminated gonococcal infection, the following statement is **TRUE**
A. hematogenous dissemination occurs in 10-30% of all gonococcal infections
B. men account for the majority of cases
C. meningitis and osteomyelitis are the most common manifestations
D. skin lesions found in75% of patients
E. acute endocarditis is an uncommon but often fatal manifestation

71. All patients who are presumed or proven to have gonorrhea should be evaluated for concurrent presence of all the following infections **EXCEPT**
A. syphilis
B. hepatitis B
C. HIV
D. C. trachomatis
E. HSV2

72. Children who have bacteremia or arthritis caused by gonococcal infections should be treated with ceftriaxone (50 mg/kg/day; maximum: 1 g/day if weighs <45 kg) for a minimum of
A. 3 days
B. 5 days
C. 7 days
D. 14 days
E. 21 days

73. The **MOST** common etiology of joint and bone infections in young children is

A. Staphylococcus aureus
B. Streptococcus pneumoniae
C. Kingellakingae
D. Haemophilus influenza
E. Neisseria meningitidis

74. Diagnosis of chancroid in infants and children is a strong evidence of sexual abuse. Chancroid is caused by
A. Haemophilus ducreyi
B. Syphilis
C. C. trachomatis
D. Kingellakingae
E. Neisseria gonorrhea

75. The **MOST** important clinical manifestation of M.catarrhalis infection in children is
A. pneumonia
B. bronchitis
C. otitis media
D. pharyngitis
E. cystitis

76. The **MOST** common reason for which children receive antibiotics is
A. pneumonia
B. bronchitis
C. otitis media
D. pharyngitis
E. cystitis

77. Infants younger than 3 mo of age with suspected pertussis usually are admitted to hospital, as are many between 3 and 6 mo of age unless witnessed paroxysms are not severe, as well as are patients of any age if significant complications occur.
Typical paroxysms that are not life threatening have the following feature
A. duration >45 sec
B. blue color change
C. bradycardia <60 beats/min in infants
D. oxygen desaturation that spontaneously resolves at the end of the paroxysm
E. post-tussive unresponsiveness

78. All the following regarding assessment and care of infants with pertussis are true **EXCEPT**
A. infants with potentially fatal pertussis may appear well between episodes

B. a paroxysm must be witnessed before a decision is made between hospital and home care
C. suctioning of nose, oropharynx, or trachea should be performed on a preventive schedule
D. feeding in the period following a paroxysm may be more successful than after napping
E. family education, recruitment as part of the team, and continued support after discharge are essential

79. Hospital discharge of infants with pertussis is appropriate in all the following circumstances **EXCEPT**
A. over a 24-hr period disease severity is unchanged or diminished
B. intervention is not required during paroxysms
C. nutrition is adequate
D. no complication has occurred
E. parents are adequately prepared for care at home

80. The preferable antibiotic in neonate with pertussis is
A. azithromycin
B. erythromycin
C. clarithromycin
D. trimethoprim-sulfamethoxazole
E. amoxycilline

81. Echocardiography should be performed in critically ill infants with pertussis to detect presence of
A. myocarditis
B. heart failure
C. congenital heart defect
D. pulmonary hypertension
E. right atrial dilatation

82. The least common clinical feature of typhoid fever in children is
A. diarrhea
B. abdominal pain
C. pallor
D. splenomegaly
E. headache

83. All the following are clinical features of typhoid fever **EXCEPT**
A. incubation period is usually 30-45 days
B. macular or maculopapular rash (rose spots) may be visible around the 7th-10th

day of the illness
C. if complications not occur, the symptoms and physical findings gradually resolve within 2-4 wk
D. typhoid fever usually manifests as high-grade fever with a wide variety of associated features
E. relative bradycardia, neurologic manifestations, and gastrointestinal bleeding, are rare in children

84. Regarding diagnosis of typhoid fever, one of the following is **TRUE**
A. blood cultures are positive in 65-80% of the patients
B. urine culture results become positive within the 1st wk
C. thrombocytosis may be a marker of severe illness
D. diagnosis by Widal test alone is prone to error
E. leukocytosis is rare in young children

85. All the following are clinical features of shigellosis **EXCEPT**
A. an incubation period of 12 hr to several days
B. most children never progress to the stage of bloody diarrhea
C. untreated diarrhea can last more than 4 weeks
D. neurologic findings are the most common extraintestinal manifestations
E. neonatal shigellosis is rare

86. Cholera is a dehydrating diarrheal disease caused by Vibrio cholerae, of more than 200 serogroups; the serogroups that have been associated with epidemics are
A. O131
B. O139
C. O151
D. O159
E. O165

87. Persons with which blood group are at increased risk for developing severe disease of cholera?
A. A
B. B
C. AB
D. O
E. Blood group not related to the severity of the disease

88. Seizure in cholera is commonly due to
A. hypocalcemia
B. hyponatremia
C. hypernatremia

D. hypoglycemia
E. fever

89. Complications of campylobacter jejuni can include acute and late onset complications that may present after the acute infection has resolved.
Of the following, the **MOST** common late-onset complication is
A. reactive arthritis
B. immunoglobulin A nephropathy
C. immune complex glomerulonephritis
D. hemolytic anemia
E. carditis

90. **MOST** Campylobacter isolates are susceptible to
A. aminoglycosides
B. cephalosporins
C. rifampin
D. penicillins
E. trimethoprim

91. The genus Yersinia is a member of the family Enterobacteriaceae and comprises more than 14 named species, 3 of which are established as human pathogens.
Which of the following is **MOST** often associated with mesenteric lymphadenitis?
A. Yersinia enterocolitica
B. Yersinia pseudotuberculosis
C. Yersinia pestis
D. Yersinia mollaretii
E. Yersinia rohdei

92. Patients with conditions leading to iron overload are at higher risk of developing infections with
A. Aeromonas
B. Pseudomonas aeruginosa
C. Yersinia
D. Francisella tularensis
E. Campylobacter

93. The **MOST** common complication of Y. enterocolitica infection in younger children is
A. reactive arthritis
B. erythema multiforme
C. hemolytic anemia
D. thrombocytopenia

E. septicemia

94. Tularemia is a zoonotic infection caused by the gram-negative bacterium Francisella tularensis.
Of the following, the **MOST** common forms of tularemia diagnosed in children is

A. ulceroglandular
B. pneumonia
C. oropharyngeal
D. oculoglandular
E. typhoidal

95. Human brucellosis is caused by organisms of the genus Brucella and continues to be a major public health problem worldwide.
All the following are true **EXCEPT**

A. symptoms can be acute or insidious
B. most patients present with fever, arthralgia/arthritis, and hepatosplenomegaly
C. some present as a fever of unknown origin
D. variable fever pattern
E. invasion of the nervous system occurs in approximately 20% of cases

96. Which antibiotics should be avoided in patients with botulism?

A. penicillin
B. cephalosporin
C. macrolide
D. aminoglycoside
E. trimethoprim-sulfamethoxazole

97. Tetanus is an acute spastic paralytic illness historically called lock-jaw that is caused by the neurotoxin produced by Clostridium tetani.
Of the following, the **TRUE** statement is

A. tetanus is most often localized
B. incubation period typically is 2-6 weeks
C. patient remains conscious and there is no pain
D. tetanic paralysis becomes more severe in the 4^{th} wk after onset
E. cephalic tetanus occurs in association with chronic otitis media

98. Worsening of acne in adolescent female on anti-tuberculous treatment is caused by

A. isoniazid
B. rifampin
C. pyrazinamide
D. ethambutol

E. streptomycin

99. Isoniazid is accompanied by significant drug–drug interactions, which of the following is **TRUE**?

A. aluminum salts increase absorption of isoniazid
B. isoniazid increase toxicity of carbamazepine
C. rifampin decreased hepatotoxicity of isoniazid
D. isoniazid decrease level of warfarin
E. prednisolone decreased isoniazid metabolism

100. The ideal agent for treating fungal urinary tract infections is

A. amphotericin B
B. fluconazole
C. voriconazole
D. micafungin
E. caspofungin

101. Candida is a common cause of oral mucous membrane infections (thrush) and perineal skin infections (Candida diaper dermatitis) in young infants.
All the following are true **EXCEPT**

A. candida species are the third most common cause of bloodstream infection in premature infants
B. up to 10% of full-term infants are colonized as the result of vertical transmission from the mother at birth
C. histamine-2 blockers facilitate Candida colonization and overgrowth
D. significant risk factors for neonatal invasive candidiasis include the presence of a central venous catheter
E. the cumulative incidence is <0.3% among infants <750 g birthweight admitted to the NICU

102. NICUs with a high incidence of invasive candidiasis should consider prophylaxis with fluconazole in infants with a birthweight of

A. <750 g
B. <1,000 g
C. <1,500 g
D. <2,000 g
E. <2,500 g

103. Antiviral chemotherapy typically requires a delicate balance between targeting critical steps in viral replication without interfering with host cellular function.
Which of the following antiviral blocks M2 protein ion channel?

A. acyclovir

B. amantadine
C. ganciclovir
D. foscarnet
E. vidarabine

104. In neonates with HSV infection including CNS involvement, to improve neurodevelopmental outcome, suppressive therapy with oral acyclovir should be used for

A. 3 mo
B. 6 mo
C. 9 mo
D. 12 mo
E. 18 mo

105. Acyclovir is a safe and effective therapy for herpes simplex virus (HSV) infections. All the following are true **EXCEPT**

A. activity against CMV is less pronounced
B. activity against Epstein-barr virus is modest, both in vitro and clinically
C. acyclovir therapy in a nursing mother is not a contraindication to breastfeeding
D. main route of elimination is hepatic
E. high doses of acyclovir are associated with neurotoxicity

106. Ribavirin is a guanosine analog that has broad-spectrum activity against a variety of viruses, particularly RNA viruses.
All the following are true **EXCEPT**

A. its precise mechanism of action is incompletely understood
B. aerosolized ribavirin effective for parainfluenza, influenza, and measles infections
C. ribavirin is generally nontoxic, particularly when administered by aerosol
D. ribavirin and its metabolites concentrate in hepatocytes
E. conjunctivitis and bronchospasm have been reported following exposure to aerosolized drug

107. The portal of entry of measles virus is through the respiratory tract or conjunctivae following contact with large droplets or small-droplet aerosols in which the virus is suspended.
Patients with measles are infectious

A. 1 day before to up to 4-6 days after the onset of rash
B. 2 days before to up to 4-6 days after the onset of rash
C. 3 days before to up to 4-6 days after the onset of rash
D. 4 days before to up to 4-6 days after the onset of rash
E. 5 days before to up to 4-6 days after the onset of rash

108. Measles is a serious infection characterized by high fever, an enanthem, cough, coryza, conjunctivitis, and a prominent exanthem.
All the following are true **EXCEPT**

A. incubation period is 8-12 days
B. Koplik spots have been reported in 50-70% of measles cases
C. the rash begins on the forehead, behind the ears, and on the upper neck
D. the rash fades over about 3 days in the same progression as it evolved
E. in more severe cases, generalized lymphadenopathy may be present

109. The **MOST** common complication of measles is

A. aseptic meningitis
B. pharyngitis
C. otitis media
D. pneumonia
E. cystitis

110. Subacute sclerosing panencephalitis (SSPE) is a chronic complication of measles with a delayed onset and an outcome that is nearly always fatal.
SSPE is characterized by

A. females are affected twice as often as males
B. clinical manifestations begin insidiously 3-6 yr after primary measles infection
C. the hallmark of the 1st stage is massive myoclonus
D. the 3rd stage is characterized by loss of critical centers
E. clinical trials using isoprinosine suggest significant benefit

111. The **MOST** common finding among infants with congenital rubella syndrome is

A. psychomotor retardation
B. cataracts
C. deafness
D. patent ductus arteriosus
E. neonatal purpura

112. Mumps virus is in the family Paramyxoviridae and the genus Rubulavirus.
Mumps is characterized by

A. incubation period ranges from 7-11 days
B. unilateral parotitis rarely becomes bilateral
C. pale opening of the Stensen duct
D. parotid swelling peaks in approximately 7 days
E. a morbilliform rash is rarely seen

113. The **MOST** common complication of mumps is

A. meningitis

B. conjunctivitis
C. optic neuritis
D. pneumonia
E. thrombocytopenia

114. Intrauterine mumps infection have been associated with
A. glaucoma
B. limb anomalies
C. pulmonary stenosis
D. renal agenesis
E. no fetal malformations

115. Mumps virus is neurotropic and is thought to enter the CNS via the choroid plexus and infect the choroidal epithelium and ependymal cells. CNS involvement is characterized by
A. symptomatic CNS involvement occurs in 40-60% of infected individuals
B. encephalitis most commonly manifests 10 days after the parotitis
C. CNS symptoms usually resolve in 3 days
D. CSF protein content is usually elevated
E. facial palsy is a less-common CNS complication

116. Hematogenous dissemination of HSV to the central nervous system occur in
A. neonates
B. individuals with eczema
C. severely malnourished children
D. infants on steroids
E. all the above

117. Herpes whitlow is HSV infection of the
A. eye
B. mouth
C. fingers
D. ear
E. lip

118. The **MOST** common cause of recurrent aseptic meningitis is
A. mumps
B. EBV
C. adenoviruses
D. HSV
E. influenza virus

119. In neonatal HSV encephalitis, skin vesicles occur in approximately

A. 20%
B. 40%
C. 60%
D. 80%
E. 100%

120. In patients with neonatal HSV infection who receive IV treatment for 2-3 weeks then suppressive treatment for 6 months, they should be monitored by

A. absolute neutrophil count ANC
B. liver function tests
C. renal function tests
D. platelet count
E. Hb%

121. Varicella-zoster virus (VZV) causes primary, latent, and recurrent infections. All the following statements are true **EXCEPT**

A. varicella is a serious disease in young infants
B. within households, transmission of VZV occurs at a rate of 65-86%
C. Herpes zoster is more common in winter
D. the lifetime risk for herpes zoster for individuals with a history of varicella is 20-30%
E. Herpes zoster is very rare in healthy children younger than 10 yr of age

122. Varicella is an acute febrile rash illness that is common in Iraq. Of the following, the **TRUE** statement is

A. it usually begins 4-6 days after exposure
B. subclinical varicella is common
C. mild abdominal pain may occur 24-48 hr before the rash appears
D. temperature elevation usually as high as 41.1°c
E. lesions often appear first on the extremities

123. All the following are true about varicella in unvaccinated individuals **EXCEPT**

A. simultaneous presence of lesions in the same stages of evolution
B. distribution of the rash is predominantly central
C. many children have vesicular lesions on the eyelids
D. exanthem may be much more extensive in children with skin disorders
E. hypopigmentation or hyperpigmentation of lesion sites persists for days to weeks in some children

124. Encephalitis and acute cerebellar ataxia are well-described neurologic complications of varicella.

All the following are true **EXCEPT**

A. morbidity from central nervous system complications is highest among patients younger than 5 yr and older than 20 yr
B. nuchal rigidity, altered consciousness, and seizures characterize meningoencephalitis
C. patients with cerebellar ataxia have a gradual onset of gait disturbance, nystagmus, and slurred speech
D. neurologic symptoms usually begin 2-6 days after the onset of the rash but may occur during the incubation period or after resolution of the rash
E. clinical recovery is typically occurring after 96 hr, and is usually gradual

125. Oral therapy with acyclovir (20 mg/kg/dose; maximum: 800 mg/dose) given as 4 doses/day for 5 days can be used to treat uncomplicated varicella in individuals at increased risk for moderate to severe varicella.
It includes all the following individuals **EXCEPT**

A. nonpregnant individuals older than 12 yr of age
B. individuals older than 12 mo of age with chronic cutaneous disorders
C. individuals receiving short-term corticosteroid therapy
D. individuals receiving long-term salicylate therapy
E. individuals with chronic hematological disorders

126. Epstein-Barr virus (EBV) is shed in oral secretions after acute infection for

A. 2 wk
B. 4 wk
C. 2 mo
D. 4 mo
E. 6 mo

127. What percent of the world's population infected by Epstein-Barr virus (EBV)?

A. 5%
B. 25%
C. 50%
D. 75%
E. 95%

128. Infectious mononucleosis is the best-known clinical syndrome caused by Epstein-Barr virus (EBV). It is characterized by

A. symptomatic hepatitis
B. elevated liver enzymes
C. massive splenic enlargement
D. huge hepatomegaly
E. occasional palatal petechiae

129. The **MOST** common long-term sequela associated with congenital CMV infection is

A. renal failure
B. hearing loss
C. heart failure
D. vision loss
E. hepatic failure

130. Human herpesvirus 6 (HHV-6A and HHV-6B) and human herpesvirus 7 (HHV-7) cause infection in infancy and early childhood. HHV-6B is responsible for the majority of cases of roseola infantum (exanthema subitum or sixth disease).
All the following are true **EXCEPT**

A. 95% of children being infected with HHV-6 by 2 yr of age
B. peak age of primary HHV-6B infection is 6-9 mo of life
C. congenital infection with HHV-6 occurs in 1% of newborns
D. congenital infection with HHV-7 is well recognized
E. breast milk does not play a role in transmission of either HHV-6 or HHV-7

131. Amantadine and rimantadine are effective only against influenza A viruses and are not approved for use in children younger than

A. 6 mo
B. 18 mo
C. 3 yr
D. 5 yr
E. 10 yr

132. Typically, the first sign of infection in infants with respiratory syncytial virus (RSV) is

A. rhinorrhea
B. cough
C. low-grade fever
D. increased respiratory rate
E. subcostal retractions

133. For military services, vaccines are available for human adenoviruses types

A. 1 and 4
B. 2 and 5
C. 3 and 6
D. 4 and 7
E. 5 and 8

134. Respiratory tract infections are common manifestations of human adenoviruses (HAdV) infections in children and adults.

All the following are true **EXCEPT**

A. HAdVs cause 5-10% of all childhood respiratory disease
B. primary infections in infants may manifest as bronchiolitis or pneumonia
C. HAdV pneumonia may manifest as features more typical of bacterial disease
D. pharyngitis typically includes symptoms of coryza, sore throat, and fever
E. HAdV can be identified in <5% of children with isolated pharyngitis

135. Rotaviruses are in the Reoviridae family and cause disease in virtually all mammals and birds.
All the following statements are true **EXCEPT**

A. infection typically begins after an incubation period of <48 hr (range: 1-7 days)
B. fever, vomiting and frequent watery stools are present in about 50-60% of cases
C. vomiting and fever typically abate after the 4th day of illness
D. dehydration may develop and progress rapidly particularly in infants
E. most severe disease typically occurs among children 4-36 mo of age

136. Common adverse effects of nitazoxinide include

A. diarrhea
B. flatulence
C. increased appetite
D. fever
E. pruritus

137. One of the following statements regarding tinidazole is **TRUE**

A. it is FDA approved for treatment of trichomoniasis
B. it can be in infancy
C. it should be given in 2 divided doses
D. it is excreted via urine only
E. it carries a pregnancy category A

138. All the following can cause human amoebic meningoencephalitis **EXCEPT**

A. Naegleria
B. Acanthamoeba
C. Balamuthia
D. Entamoeba histolytica
E. Sappinia

139. One of the following statements regarding Giardia lamblia is **TRUE**

A. life cycle is composed of 3 stages
B. each ingested cyst produces 2 trophozoites in the caecum
C. trophozoites contain 4 oval nuclei anteriorly

D. cyst viability is not affected by the usual concentrations of chlorine used to purify water for drinking
E. Giardia genotypes difference lead to wide spectrum of clinical manifestations

140. All the following statements regarding giardiasis are true **EXCEPT**
A. incubation period of Giardia infection usually is 1-2 wk
B. most infections are asymptomatic
C. symptomatic infections occur more frequently in adults than in children
D. stools do not contain blood, mucus, or fecal leukocytes
E. malabsorption of sugars, fats, and fat-soluble vitamins is well documented

141. Giardiasis should be considered in children who have the following presentations **EXCEPT**
A. acute dysenteric diarrhea
B. persistent diarrhea
C. failure to thrive
D. malabsorption
E. chronic crampy abdominal pain

142. Pregnant mother seek your advice about the stool examination of her asymptomatic 15 -month-old child which contain giardia cyst, your advice should be
A. reassurance, no treatment
B. inidazole 50 mg\kg once
C. nitazoxinide 200 mg bid for 3 days
D. metronidazole15 mg/kg/day in 3 divided doses for 5-7 days
E. albendazole 400 mg once a day for 5 days

143. The largest protozoan that parasitizes human is
A. Entamoeba histolytica
B. Giardia lamblia
C. Balantidium coli
D. Isospora belli
E. Cryptosporidium

144. The leading protozoal cause of diarrhea in children worldwide is
A. Entamoeba histolytica
B. Giardia lamblia
C. Balantidium coli
D. Isospora belli
E. Cryptosporidium

145. The **MOST** common cause of death in kala azar is

A. severe anemia
B. bleeding
C. secondary bacterial infection
D. hepatic failure
E. renal failure

146. Hand-foot-mouth disease is one of the more distinctive rash syndromes; it is **MOST** frequently caused by

A. coxsackievirus A6
B. coxsackievirus A16
C. enterovirus 71
D. coxsackievirus B2
E. coxsackievirus B12

PART XVII Infectious Diseases ANSWERS

HAYDER ALMUSAWI

1.**(A).**
2.**(B).**
3.**(D).** Hepatitis A and West Nile Virus.
4.**(D).** Vaccines can consist of whole inactivated microorganisms (e.g., polio and hepatitis A), parts of the organism (e.g., acellular pertussis, HPV, and hepatitis B), polysaccharide capsules (e.g., pneumococcal and meningococcal polysaccharide vaccines), polysaccharide capsules conjugated to protein carriers (e.g., Hib, pneumococcal, and meningococcal conjugate vaccines), live attenuated microorganisms (measles, mumps, rubella, varicella, rotavirus, and live-attenuated influenza vaccines), and toxoids (tetanus and diphtheria).
5.**(C).** T-lymphocyte independent vaccines are associated with poor immune responses in children <2 yr of age, short-term immunity, and absence of an enhanced or booster response on repeat exposure to the antigen. With some polysaccharide vaccines, repeat doses actually are associated with reduced responses, as measured by antibody concentrations, compared to 1st doses (i.e., hyporesponsive). To overcome problems of plain polysaccharide vaccines, polysaccharides have been conjugated, or covalently linked, to protein carriers, converting the vaccine to a T-lymphocyte dependent vaccine. In contrast to plain polysaccharide vaccines, conjugate vaccines induce higher-avidity antibody, immunologic memory leading to booster responses on repeat exposure to the antigen, long-term immunity, and herd protection by decreasing carriage of the organism.
6.**(C).**
7.**(B).** Two rotavirus vaccines are available, RotaTeq (RV5) and Rotarix (RV1). With both vaccines, the 1st dose can be administered as early as 6 wk of age and must be administered by 14 wk 6 days. The final dose in the series must be administered no later than 8 mo of age. The RV5 vaccine is administered in 3 doses at least 4 wk apart. The RV1 vaccine is administered in 2 doses at least 4 wk apart. Immunization should not be initiated for infants 15 wk of age and older as stated in the immunization schedule.
8.**(A).** As a result of effective and safe vaccines, smallpox has been eradicated; polio is close to worldwide eradication.
9.**(B).** Infants, children, and adolescents in the Iraq routinely are immunized against 11 diseases: BCG, poliomyelitis, hepatitis B, diphtheria, tetanus, pertussis, H. influenzae type b (Hib) disease, rotavirus, measles, mumps and rubella.
10.**(A).** The most common adverse reaction to immunoglobulin is pain and discomfort at the injection site and, less commonly, flushing, headache, chills, and nausea.

11.**(C).** In hepatitis A prophylaxis, intramuscular IG is recommended.
12.**(D).**
13.**(E).** Toxoids are (tetanus and diphtheria).
14.**(C).**
15.**(B).**
16.**(C).** The minimum interval between 2nd and 3rd dose is 8 weeks andat least 16 weeks after 1st dose. Minimum age for the last dose is 24 weeks.
17.**(B).** Preterm infants generally can be vaccinated at the same chronologic age as full-term infants according to the recommended childhood immunization schedule. An exception is the birth dose of hepatitis B vaccine. Infants weighing ≥2 kg and who are stable may receive a birth dose. However, hepatitis B vaccination should be deferred in infants weighing <2 kg at birth until 30 days of age, if born to a HBs Ag negative mother. All preterm, low birth weight infants born to HBs Ag positive mothers should receive hepatitis B immunoglobulin and hepatitis B vaccine within 12 hr of birth. However, such infants should receive an additional 3 doses of vaccine starting at 30 days of age.
18.**(A).** Oral polio, smallpox, live attenuated influenza, and BCG all these vaccines are contraindicated for this patient.
19.**(C).**
20.**(D).** Waterless hand hygiene products increase hand hygiene compliance and save time; these agents are the preferred agents for routine hand hygiene when hands are not visibly soiled. These products are effective in killing most microbes but do not remove dirt or debris. However, they are ineffective against *C*. difficile spores, requiring the use of other cleansing products during hospital C. difficile outbreaks.
21.**(D).**
22.**(D).**
23.**(B).** The drug of choice is azithromycin (10 mg/kg once daily for up to 3 days, with maximum daily dose of 500 mg). Ciprofloxacin (10 mg/kg per dose twice a day for up to 3 days, maximum dose of 500 mg twice a day) is an alternative for children >1 yr of age. Amoxicillin, trimethoprim-sulfamethoxazole (cotrimoxazole), and erythromycin should not be prescribed for self-treatment of traveler's diarrhea, because of widespread resistance among diarrheal pathogens.
24.**(C).** Fever is defined as a rectal temperature ≥38 ° C (100.4°F) and a value >40°C (104°F) is called hyperpyrexia.
25.**(D).** Endogenous pyrogens include the cytokines interleukins 1 and 6, tumor necrosis factor α, and interferons β and γ. Some substances produced within the body are not pyrogens but are capable of stimulating endogenous pyrogens. Such substances include antigen–antibody complexes in the presence of complement, complement components, lymphocyte products, bile acids, and androgenic steroid metabolites.
26.**(B).** Drugs that are known to cause fever include vancomycin, amphotericin B, and allopurinol.

27.**(E).** Ingestion of dirt is a particularly important clue to infection with Toxocara canis (visceral larva migrans) or Toxoplasma gondii (toxoplasmosis).
28.**(A).** Palpebral conjunctivitis in a febrile patient may be a clue to measles, coxsackievirus infection, tuberculosis, infectious mononucleosis, lymphogranulomavenereum, or cat-scratch disease. In contrast, bulbar conjunctivitis in a child with FUO suggests Kawasaki disease or leptospirosis.
29.**(D).** Multiple or repeated blood cultures may be required to detect bacteremia associated with infective endocarditis, osteomyelitis, or deep-seated abscesses.
30.**(B).** All other distractors represent primary immune deficiency.
31.**(D).** Intermittent fever is an exaggerated circadian rhythm that includes a period of normal temperatures on most days; extremely wide fluctuations may be termed septic or hectic fever. Sustained fever is persistent and does not vary by more than 0.5°C (0.9°F)/day. Remittent fever is persistent and varies by more than 0.5°C (0.9°F)/day. Relapsing fever is characterized by febrile periods that are separated by intervals of normal temperature.
32.**(C).** Temperatures in excess of 41°C (105.8°F) are most often associated with a noninfectious cause.
33.**(D).**
34.**(A).** Pyelonephritis is the most common serious bacterial infection in this age group and is also more common in uncircumcised infant boys and infants with urinary tract anomalies. E. coliis the most common pathogen identified in bacteremic infants, the majority having pyelonephritis.
35.**(A).** Neutropenia is defined as an absolute neutrophil count of <1,000 cells/mm3 and can be associated with significant risk for developing severe bacterial and fungal disease.
36.**(D).** Because the defect involves leukocyte migration and adherence, the neutrophil count in the peripheral blood is usually extremely elevated but pus is not found at the site of infection.
37.**(B).** Although there has been ever-increasing emergence of resistance to penicillins but they remain the drugs of choice for pediatric infections caused by group A and group B Streptococcus, Treponema pallidum (syphilis), L. monocytogenes, and N. meningitidis.
38.**(B).** Active against streptococci, H. influenzae, M. catarrhalis, Neisseria gonorrhoeae, Serratia marcescens, and Proteus vulgaris. No antistaphylococcal or antipseudomonal activity. Dose: 8 mg/kg/24 hr divided q 12-24 hr PO.
39.**(A).** Dose: 25-100 mg/kg/24 hr divided q 6-8 hr PO.
40.**(B).** Carbapenem antibiotic with broad-spectrum activity against Gram-positive cocci and Gram-negative bacilli, including P. aeruginosa and anaerobes. No activity against S. maltophilia.
41.**(D).** It may increase levels of warfarin, phenytoin, and lithium.
42.**(C).** The first-generation cephalosporins (e.g., cefazolin, a parenteral formulation, and cephalexin, an oral equivalent) are commonly used for management of skin and

soft-tissue infections caused by susceptible strains of S. aureus and group A Streptococcus. The second-generation cephalosporins (e.g., cefuroxime, cefoxitin) have better activity against Gram-negative bacterial infections than do first-generation cephalosporins and are used to treat respiratory tract infections, urinary tract infections, and skin and soft-tissue infections. A variety of orally administered second-generation agents (cefaclor, cefprozil, loracarbef, cefpodoxime) are commonly used in the outpatient management of sinopulmonary infections and otitis media. The third-generation cephalosporins (cefotaxime, ceftriaxone, and ceftazidime) are typically used for serious pediatric infections, including meningitis and sepsis. A fourth generation cephalosporin, called cefepime, has activity against P. aeruginosa and retains good activity against methicillin-susceptible staphylococcal infections. A fifth generation cephalosporin, ceftaroline has been licensed.

43.**(C).** Ceftriaxone should not be mixed or reconstituted with a calcium-containing product, because particulate formation can result. Cases of fatal reactions with ceftriaxone–calcium precipitates in lungs and kidneys in neonates have been reported.

44.**(C).** Toxic shock syndrome (TSS) is an acute and potentially severe illness characterized by fever, hypotension, erythematous rash with subsequent desquamation on the hands and feet, and multisystem involvement, including vomiting, diarrhea, myalgias, nonfocal neurologic abnormalities, conjunctival hyperemia, and strawberry tongue.

45.**(A).**

MAJOR CRITERIA (ALL REQUIRED)

1. Acute fever; temperature >38.8°C (101.8°F)
2. Hypotension
3. Rash (erythroderma with convalescent desquamation)

MINOR CRITERIA (ANY 3 OR MORE)

1. Mucous membrane inflammation (vaginal, oropharyngeal or conjunctival hyperemia, strawberry tongue)
2. Vomiting, diarrhea
3. Liver abnormalities (bilirubin or transaminase greater than twice upper limit of normal)
4. Renal abnormalities (urea nitrogen or creatinine greater than twice upper limit of normal, or greater than 5 white blood cells per high-power field)
5. Muscle abnormalities (myalgia or creatinine phosphokinase greater than twice upper limit of normal)
6. Central nervous system abnormalities (alteration in consciousness without focal neurologic signs)
7. Thrombocytopenia (100,000/mm3 or less)

46.**(E).** Many of the clinical features of TSS are usually absent or rare in Kawasaki disease, including diffuse myalgia, vomiting, abdominal pain, diarrhea, azotemia, hypotension, acute respiratory distress syndrome, and shock.

47.**(A).** Children at increased risk of pneumococcal infections include those with sickle cell disease, asplenia, deficiencies in humoral (B cell) and complement-mediated immunity, HIV infection, certain malignancies (e.g., leukemia, lymphoma), chronic heart, lung, or renal disease (particularly nephrotic syndrome), cerebrospinal fluid leak, and cochlear implants.
48.**(C).** A pharyngeal strains (e.g., M type 12) are associated with glomerulonephritis; skin strains (e.g., M types 49, 55, 57, and 60) are considered nephritogenic. Several pharyngeal serotypes (e.g., M types 1, 3, 5, 6, 18, 29), but no skin strains, are associated with acute rheumatic fever.
49.**(E).** It is caused by an infection with pyrogenic exotoxin (erythrogenic toxin)–producing GAS. The rash appears within 24-48 hr after onset of symptoms, although it may appear with the first signs of illness. After 3-4 days, the rash begins to fade and is followed by desquamation. After desquamation, the reddened papillae are prominent, giving the tongue a strawberry appearance. The milder form can be confused with viral exanthems, Kawasaki disease, and drug eruptions.
50.**(C).** Nonbullous impetigo is the more common form. The lesions may occur anywhere but are most common on the face and extremities. Regional lymphadenitis is common. Nonbullous impetigo is generally not accompanied by fever or other systemic signs or symptoms. Bullous impetigo is less common and occurs most often in neonates and young infants. The usual distribution involves the face, buttocks, trunk, and perineum.
51.**(D).**
52.**(C).** Arthritis occurs in approximately 75% of patients with acute rheumatic fever and typically involves larger joints, particularly the knees, ankles, wrists, and elbows. Involvement of the spine, small joints of the hands and feet, or hips is uncommon. Rheumatic arthritis is almost never deforming. There is often an inverse relationship between the severity of arthritis and the severity of cardiac involvement.
53.**(A).** Acute rheumatic carditis usually presents as tachycardia and cardiac murmurs, with or without evidence of myocardial or pericardial involvement.
54.**(B).** Patients with carditis and more than minimal cardiomegaly and/or congestive heart failure should receive corticosteroids. The usual dose of prednisone is 2 mg/kg/day in 4 divided doses for 2-3 wk followed by half the dose for 2-3 wk and then tapering of the dose by 5 mg/24 hr every 2-3 days. When prednisone is being tapered, aspirin should be started at 50 mg/kg/day in 4 divided doses for 6 wk to prevent rebound of inflammation.
55.**(C).** Phenobarbital (16-32 mg every 6-8 hr PO) is the drug of choice. If phenobarbital is ineffective, then haloperidol (0.01-0.03 mg/kg/24 hr divided bid PO) or chlorpromazine (0.5 mg/kg every 4-6 hr PO) should be initiated. Some patients may benefit from a few week courses of corticosteroids.
56.**(D).**
57.**(B).**

- Rheumatic fever without carditis : 5 yr or until 21 yr of age, whichever is longer

- Rheumatic fever with carditis but without residual heart disease : 10 yr or until 21 yr of age,whichever is longer
- Rheumatic fever with carditis and residual heart disease: 10 yr or until 40 yr of age, whichever is longer; sometimes lifelong prophylaxis

58.**(A).** Early-onset neonatal GBS disease presents as sepsis; pneumonia and meningitis. Late-onset neonatal GBS disease most commonly manifests as bacteremia (45-65%) and meningitis (25-35%). Invasive GBS disease in children beyond early infancy is uncommon. Bacteremia without a focus is the most common syndrome associated with childhood GBS disease beyond early infancy.

59.**(D).**

- bacteremia without a focus 10 days
- meningitis 2-3 wk
- ventriculitis at least 4 wk
- septic arthritis 3-4 wkase
- osteomyelitis 3-4 wkas

60.**(A).** Specific antitoxin is the mainstay of therapy and should be administered on the basis of clinical diagnosis. The role of antimicrobial therapy is to halt toxin production, treat localized infection, and prevent transmission of the organism to contacts.

61.**(B).** Three major forms of actinomycosis—cervicofacial, abdominal and pelvic, and pulmonary. In the patient with cervicofacial actinomycosis, there is often a history of oral trauma, oral surgery, dental procedures, or caries, facilitating entry of organisms into cervicofacial tissues. Cervicofacial actinomycosis usually manifests as a painless, slow-growing, hard mass and can produce cutaneous fistulas, a condition commonly known as lumpy jaw. Less frequently, cervicofacial actinomycosis manifests clinically as an acute pyogenic infection with a tender, fluctuant mass with trismus, firm swelling, and fistulas with drainage containing the characteristic sulfur granules.

62.**(A).** The brain is the most common secondary site and is involved in 15-40% of cases of pulmonary nocardiosis. Brain abscess is the most common presentation, and meningitis is the second most common presentation.

63.**(D).** Actinomyces, staphylococcus, streptococcus, diphtheria, enterococcus, listeria and nocardia are gram positive.

64.**(B).**

65.**(A).** The most common clinical manifestation of meningococcal infection is asymptomatic carriage of the organism in the nasopharynx.

66.**(D).**

67.**(B).** The most common complication of acute severe meningococcal septicemia is focal skin infarction, which most commonly affects the lower limbs and can lead to substantial scarring and require skin grafting.

68.**(E).** Poor prognostic factors on presentation include hypothermia or extreme hyperpyrexia, hypotension or shock, purpura fulminans, seizures, leukopenia, thrombocytopenia (including disseminated intravascular coagulation), acidosis, and high circulating levels of endotoxin and tumor necrosis factor-α. The presence of

petechiae for <12 hr before admission, absence of meningitis, and low or normal erythrocyte sedimentation rate indicate rapid, fulminant progression and poorer prognosis.

69.**(A).** Ceftriaxone and ciprofloxacin are the most effective agents for prophylaxis, the latter being the drug of choice in some countries. Rifampin is most widely used but fails to eradicate colonization in 15% of cases. Neither penicillin nor ampicillin treatment eradicates nasopharyngeal carriage and should not be routinely used for prophylaxis.

70.**(E).** Hematogenous dissemination occurs in 1-3% of all gonococcal infections, more frequently after asymptomatic primary infections than symptomatic infections. Women account for the majority of cases, with symptoms beginning 7-30 days after infection and within 7 days of menstruation. The most common manifestations are asymmetric arthralgia, petechial or pustular acral skin lesions, tenosynovitis, suppurative arthritis, and, rarely, carditis, meningitis, and osteomyelitis. Only 25% of patients complain of skin lesions.

71.**(E).** All patients who are presumed or proven to have gonorrhea should be evaluated for concurrent syphilis, hepatitis B, HIV, and *C. trachomatis* infection.

72.**(C).** Children who have bacteremia or arthritis should be treated with ceftriaxone (50 mg/kg/day; maximum: 1 g/day if weighs <45 kg) for a minimum of 7 days. Meningitis should be treated for 10-14 days, and endocarditis for a minimum of 28 days, with ceftriaxone (50 mg/kg/ dose q12h with maximum of 1-2 g IV q12h). Neonatal gonococcal ophthalmia is treated effectively with a single dose of ceftriaxone (50 mg/kg IM, not to exceed 125 mg); a single dose of cefotaxime (100 mg/kg IM) is an acceptable alternative. The conjunctivae should be irrigated frequently with physiologic saline solution.

73.**(C).** Kingellakingae is being increasingly recognized as the most common etiology of joint and bone infections in young children.

74.**(A).** Chancroid is caused by Haemophilus ducreyi, a fastidious Gram negative bacillus.

75.**(C).** The most important clinical manifestation of M.catarrhalis infection in children is otitis media. Colonization and infection with M. catarrhalis are increasing in countries in which pneumococcal conjugate vaccines are used widely.

76.**(C).** Otitis media is the most common reason for which children receive antibiotics. On the basis of culture of middle ear fluid obtained by tympanocentesis, the predominant causes of acute otitis media are Streptococcus pneumoniae, H. influenzae, and M. catarrhalis.

77.**(D).** Typical paroxysms that are not life threatening have the following features: duration <45 sec; red but not blue color change; tachycardia, bradycardia (not <60 beats/min in infants), or oxygen desaturation that spontaneously resolves at the end of the paroxysm; whooping or strength for brisk self-rescue at the end of the paroxysm; self-expectorated mucus plug; and post-tussive exhaustion but not unresponsiveness.

78.**(C).** Suctioning of nose, oropharynx, or trachea should not be performed on a “preventive” schedule.

79.**(A).** Over a 48-hr period disease severity is unchanged or diminished.
80.**(A).**

- Azithromycin: Recommended agent 10 mg/kg/day in a single dose for 5 days
- Erythromycin: Not preferred
- Clarithromycin: Not recommended
- trimethoprim-sulfamethoxazole: Contraindicated for infants <2 mo of age

81.**(D).** Progressive pulmonary hypertension in very young infants and secondary bacterial pneumonia are severe complications of pertussis and are the usual causes of death. Echocardiography should be performed in critically ill infants with pertussis to detect presence of pulmonary hypertension and to intervene expeditiously.
82.**(E).** Diarrhea 36%, abdominal pain 21%, pallor 20%, splenomegaly 17% and headache 4%.
83.**(A).** The incubation period of typhoid fever is usually 7-14 days but depends on the infecting dose and ranges between 3 and 30 days.
84.**(D).** Results of blood cultures are positive in 40-60% of the patients seen early in the course of the disease, and stool and urine culture results become positive after the 1st wk. Thrombocytopenia may be a marker of severe illness and may accompany disseminated intravascular coagulopathy. Blood leukocyte counts are frequently low in relation to the fever and toxicity, there is a wide range in counts; in younger children leukocytosis is common and may reach 20,000-25,000 cells/μL.
85.**(C).** Untreated diarrhea can last 7-10 days; only approximately 10% of patients have diarrhea persisting for longer than 10 days. Persistent diarrhea occurs in malnourished infants, children with AIDS, and occasionally previously normal children.
86.**(B).** Of the more than 200 serogroups, only serogroups O1 and O139 have been associated with epidemics, although some non-O1, non-O139 V.choleraestrains (e.g., O75 and O141) are pathogenic and can cause small outbreaks.
87.**(D).** Persons with blood group O, decreased gastric acidity, malnutrition, immunocompromised state, and absence of local intestinal immunity (prior exposure by infection or vaccination) are at increased risk for developing severe disease.
88.**(D).**
89.**(A).** The most common late-onset complications include reactive arthritis and Guillain-Barré syndrome.
90.**(A).** Most Campylobacter isolates are susceptible to macrolides, fluoroquinolones, aminoglycosides, chloramphenicol, tetracyclines, and clindamycin, and are resistant to cephalosporins, rifampin, penicillins, trimethoprim, and vancomycin.
91.**(B).** Yersinia enterocolitica is by far the most common Yersinia species causing human disease and it produces fever, abdominal pain that can mimic appendicitis, and diarrhea. Yersinia pseudotuberculosis is most often associated with mesenteric lymphadenitis. Yersinia pestis is the agent of plague and most commonly causes an acute febrile lymphadenitis (bubonic plague) and less commonly occurs as septicemic, pneumonic, pharyngeal, or meningeal plague. Other Yersinia organisms are uncommon causes of infections of humans.

92.**(C).** Patients with conditions leading to iron overload are at higher risk of developing Yersinia infections.
93.**(E).** Septicemia is more common in younger children, and reactive arthritis is more common in older patients.
94.**(A).** Ulceroglandular and glandular disease are the 2 most common forms of tularemia diagnosed in children. The most common glands involved are the cervical or posterior auricular nodes owing to a tick bite on the head or neck. If an ulcer is present, it is erythematous and painful and may last from 1-3 wk. The ulcer is located at the portal of entry. After the ulcer develops, regional lymphadenopathy ensues.
95.**(E).** Headache, mental inattention, and depression may be demonstrated in patients with brucellosis, invasion of the nervous system occurs in only approximately 1% of cases.
96.**(D).** Aminoglycoside antibiotics should be avoided because they may potentiate the blocking action of botulinum toxin at the neuromuscular junction.
97.**(E).** Tetanus is most often generalized but may also be localized. The incubation period typically is 2-14 days but may be as long as months after the injury. Because tetanus toxin does not affect sensory nerves or cortical function, the patient unfortunately remains conscious, in extreme pain, and in fearful anticipation of the next tetanic seizure. The tetanic paralysis usually becomes more severe in the 1st wk after onset, stabilizes in the 2nd wk, and ameliorates gradually over the ensuing 1-4 wk.
98.**(A).** Major adverse events include hepatotoxicity in 1% of children and approximately 3% of adults (increasing with age) and dose-related peripheral neuropathy. Minor adverse events include rash, worsening of acne, epigastric pain with occasional nausea and vomiting, decreased vitamin D levels, and dizziness.
99.**(B).** Aluminum salts decrease absorption of isoniazid, rifampin increase hepatotoxicity of isoniazid, isoniazid increase level of warfarin and prednisolone increased isoniazid metabolism.
100.**(B).** Concentrations of fluconazole are 10-20– fold higher in the urine than blood, making it an ideal agent for treating fungal urinary tract infections.
101.**(E).** The cumulative incidence is <0.3% among infants >2,500 g birthweight admitted to the NICU. The cumulative incidence increases to 8% for infants <750 g birthweight.
102.**(B).** Twice weekly fluconazole at 3 and 6 mg/kg/dose decreases rates of both colonization with Candidaspecies and invasive fungal infections.
103.**(B).** While the others inhibits viral DNA polymerase.
104.**(B).** The use of suppressive therapy with oral acyclovir for 6 mo has been demonstrated to improve neurodevelopmental outcome.
105.**(D).** The main route of elimination is renal, and dosage adjustments are necessary for renal insufficiency. Toxicity is observed typically only in exceptional circumstances: for example, if administered by rapid infusion to a dehydrated patient or a patient with underlying renal insufficiency, acyclovir can crystallize in renal tubules and produce a reversible obstructive uropathy.

106.**(D).** Ribavirin and its metabolites concentrate in red blood cells and can persist for several weeks and, in rare instances, may be associated with anemia.
107.**(C).**
108.**(D).** The rash fades over about 7 days in the same progression as it evolved, often leaving a fine desquamation of skin in its wake.
109.**(C).** Acute otitis media is the most common complication of measles and pneumonia is the most common cause of death in measles.
110.**(E).** Males are affected twice as often as females, and there appear to be more cases reported from rural than urban populations. Clinical manifestations of SSPE begin insidiously 7-13 yr after primary measles infection. The hallmark of the 2nd stage is massive myoclonus, which coincides with extension of the inflammatory process site to deeper structures in the brain, including the basal ganglia. The 4th stage is characterized by loss of critical centers that support breathing, heart rate, and blood pressure. Death soon ensues.
111.**(C).** Nerve deafness is the single most common finding among infants with congenital rubella syndrome.
112.**(E).** The incubation period for mumps ranges from 12-25 days but is usually 16-18 days. Parotitis may be unilateral initially but becomes bilateral in approximately 70% of cases. The opening of the Stensen duct may be red and edematous. The parotid swelling peaks in approximately 3 days and then gradually subsides over 7 days.
113.**(A).** The most common complications of mumps are meningitis, with or without encephalitis, and gonadal involvement. Uncommon complications include conjunctivitis, optic neuritis, pneumonia, nephritis, pancreatitis, and thrombocytopenia.
114.**(E).** No fetal malformations have been associated with intrauterine mumps infection.
115.**(E).** Symptomatic CNS involvement occurs in 10-30% of infected individuals, but CSF pleocytosis has been found in 40-60% of patients with mumps parotitis. The meningoencephalitis may occur before, along with, or following the parotitis. It most commonly manifests 5 days after the parotitis. In typical cases, symptoms resolve in 7-10 days. The CSF protein content is normal or mildly elevated. Less-common CNS complications of mumps include transverse myelitis, aqueductal stenosis, and facial palsy.
116.**(A).** Hematogenous dissemination of virus to the central nervous system appears to only occur in neonates.
117.**(C).** Herpes whitlow is a term generally applied to HSV infection of fingers or toes, although strictly speaking it refers to HSV infection of the paronychia.
118.**(D).** HSV is the most common cause of recurrent aseptic meningitis (Mollaret meningitis).
119.**(C).** Infants with encephalitis typically present at 8-17 days of life with clinical findings suggestive of bacterial meningitis, including irritability, lethargy, poor feeding,

poor tone, and seizures. Fever is relatively uncommon, and skin vesicles occur in only approximately 60% of cases.

120.**(A).** The absolute neutrophil count should be measured at weeks 2 and 4 after initiation treatment and then monthly.

121. **(C).** Herpes zoster is caused by the reactivation of latent VZV. It is not common in childhood and shows no seasonal variation in incidence.

122.**(C).** The illness usually begins 14-16 days after exposure, although the incubation period can range from 10-21 days. Subclinical varicella is rare. Temperature elevation is usually 37.8-38.9°C but may be as high as 41.1°C. Varicella lesions often appear first on the scalp, face, or trunk.

123.**(A).** The simultaneous presence of lesions in various stages of evolution is characteristic of varicella.

124.**(E).** Clinical recovery is typically rapid, occurring within 24-72 hr, and is usually complete.

125.**(E).**

126.**(E).** EBV is shed in oral secretions consistently for more than 6 mo after acute infection and then intermittently for life.

127.**(E).** EBV infects more than 95% of the world's population.

128.**(B).** The classic physical examination findings are generalized lymphadenopathy (90% of cases), splenomegaly (50% of cases), and hepatomegaly (10% of cases). Epitrochlear lymphadenopathy is particularly suggestive of infectious mononucleosis. Symptomatic hepatitis or jaundice is uncommon, but elevated liver enzymes are very common. Splenomegaly to 2-3 cm below the costal margin is typical (15-65% of cases) and is seen in most cases by ultrasonography; massive enlargement is uncommon. Palatal petechiae at the junction of the hard and soft palate are frequently seen.

129.**(B).** Hearing loss is the most common long-term sequela associated with congenital CMV infection, the failure of an infant to pass a newborn hearing screening exam should raise the possibility of congenital CMV infection. Hearing loss in the older infant and young child should also alert the clinician to the possibility of congenital CMV infection, as approximately 50% of infants with hearing loss associated with congenital CMV infection will pass an initial hearing screening exam but develop hearing loss in later infancy and early childhood.

130.**(D).** Congenital infection with HHV-7 has not been demonstrated.

131.**(D).**

132.**(A).**

133.**(D).** Vaccines are available for HAdV types 4 and 7, but are used only for military populations.

134.**(E).** The virus can be identified in 15-20% of children with isolated pharyngitis, mostly in preschool children and infants.

135.**(C).** Vomiting and fever typically abate during the 2nd day of illness, but diarrhea often continues for 5-7 days.

136.**(A).** Common adverse effects include abdominal pain, diarrhea, and nausea. Rare side effects include anorexia, flatulence, increased appetite, fever, pruritus, and dizziness.
137.**(A).** It is FDA approved for treatment of trichomoniasis and for giardiasis and amebiasis in children 3 yr of age and older. In the treatment of giardiasis, it has the advantages of very few side effects and only requiring a single dose. It is excreted via urine and feces. Tinidazole carries a pregnancy category C classification and can be detected in breast milk. Breastfeeding should be interrupted during treatment and for 3 days after treatment.
138.**(D).** Naegleria, Acanthamoeba, Balamuthia, and Sappiniaare small, free living amebas that cause human amebic meningoencephalitis.
139.**(D).** The life cycle of G. lamblia (also known as Giardia intestinalis or Giardia duodenalis) is composed of 2 stages: trophozoites and cysts. Each ingested cyst produces 2 trophozoites in the duodenum. Giardia trophozoites contain 2 oval nuclei anteriorly, a large ventral disk, a curved median body posteriorly, and 4 pairs of flagella. Studies suggest that different Giardia genotypes may cause unique clinical manifestations, but these findings appear to vary according to the geographic region tested.
140.**(C).**
141.**(A).** Giardiasis should be considered in children who have acute nondysenteric diarrhea, persistent diarrhea, intermittent diarrhea and constipation, malabsorption, chronic crampy abdominal pain and bloating, failure to thrive, or weight loss.
142.**(D).** Asymptomatic excreters generally are not treated except in specific instances such as outbreak control, prevention of household transmission by toddlers to pregnant women and patients with hypogammaglobulinemia or cystic fibrosis, and situations requiring oral antibiotic treatment where Giardia may produce malabsorption of the antibiotic.Tinidazole not recommended below 3 years old as albendazole not recommended below age of 6 years. Nitazoxanide1-3 yr: 100 mg bid for 3 days
143.**(C).**
144.**(E).** Cryptosporidium is recognized as a leading protozoal cause of diarrhea in children worldwide and is a common cause of outbreaks in childcare centers; it is also a significant pathogen in immunocompromised patients.
145.**(C).** The late stage of the illness is often complicated by secondary bacterial infections, which frequently are a cause of death.
146.**(B).** Hand-foot-and-mouth disease, one of the more distinctive rash syndromes, is most frequently caused by coxsackievirus A16, sometimes in large outbreaks, and can also be caused by enterovirus 71; coxsackie A viruses 5, 6, 7, 9, and 10; coxsackie B viruses 2 and 5; and some echoviruses.